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ABSTRACT

The purpose of this study was to describe experiences of graduates of an off-campus agriculture degree program. Additionally, selected teaching variables and attitudes related to agricultural courses delivered by videotape are described. Objectives were as follows: (1) describe selected variables related by graduates of an off-campus professional agricultural degree program; (2) describe the perceptions held by graduates of the program related to obstacles encountered in off-campus study; (3) describe graduates' perceptions regarding the importance of and the extent to which effective videotape instructional practices were utilized by instructors; (4) describe attitudes of graduates towards the use of videotape as a tool for delivering agricultural courses; and (5) describe relationships between graduates' attitudes toward videotaped instruction and selected variables. The questionnaire included four Likert-type scales in addition to selected demographic questions and questions related to graduates' experiences with the off-campus program. Results show that most graduates took 5 years or more to complete their degree, and considered the limited number of courses to be the most significant obstacle to off-campus study. Most graduates traveled to class 20 or fewer times for reasons related to the off-campus program. A majority of students perceived that limited course offerings, difficulty in balancing responsibilities, and program costs were slightly significant to significant barriers. Graduates perceived the 15 videotaped instructional practices to be important for their learning, but the extent to which the practices occurred was lower than the perceived importance for each of the practices. A majority of graduates held positive to strongly positive attitudes toward videotaped instruction. Tables of results are provided for factors that motivated students to enroll in the off-campus program; time taken by students to complete the program; number of times respondents traveled to campus for reasons related to the program; overall mean scores for the perceived significance of 13 obstacles to off-campus study; videotape instructional practices on the importance and occurrence scale; and overall attitude toward videotaped instruction. (Contains 19 references.) (Author/MAS)

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Experiences With An Off-Campus Agriculture Degree Program: The Graduate Perspective

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Introduction

Off-campus degree programs are becoming more common as universities recognize the need to extend educational opportunities beyond the campus to adults who are unable to pursue degrees through traditional means. Off-campus degree programs fit well within the mission of land-grant university colleges of agriculture. The College of Agriculture at Iowa State University recognized the importance of extending degree programs to distant learners, and began offering an off-campus master of agriculture degree in 1979. The off-campus program expanded to include a bachelor of science degree in 1991. The purpose of the off-campus agriculture degree programs is to provide post-secondary agricultural education opportunities to persons who are unable to or prefer not to study on campus (Miller & Honeyman, 1993).

Off-campus students are significantly different from traditional college students. Distant learners are typically older and generally maintain a professional career in addition to taking courses (Wilson, 1991). Miller and Honeyman (1993) described off-campus learners enrolled in selected agricultural videotaped courses as being older, generally farmers or agricultural professionals, and motivated to enroll in the program to pursue a degree. Lehtola and Boyd (1992) described agricultural distant learners as self-motivated and self-disciplined while Gulliver and Wright (1989) noted that distant learners did not place a high degree of value on interacting with other students. The unique characteristics of agricultural distant learners may interact with program variables to create unintended obstacles to off-campus study. Therefore, faculty, staff, and administrators involved with off-campus programs must understand and make accommodations for the unique characteristics and preferences of agricultural distant learners.

Students who pursue degrees through off-campus programs face a number of obstacles not normally encountered by traditional college students. Off-campus students often live too far from campus to attend on-campus classes, generally have a number of competing demands placed on their time, and are concerned with the costs associated with college (Hezel & Dirr, 1990; Thompson, Simonson & Hargrave, 1991). Some authors (Miller & Honeyman, 1993; Owen & Hotchkis, 1991) contend that videotaped instruction can be effectively used to reduce the negative effects of obstacles related to time, costs, and convenience. Many institutions of higher education, including Iowa State University's College of Agriculture, are using television and videocassettes to a greater extent than other media to capitalize on these benefits (Gunawardena, 1988; Miller & Honeyman, 1993).

Research is needed to understand the nature of graduates' experiences with off-campus degree programs. Also, research is needed to gain further understanding of the obstacles that most significantly impede the agricultural distant learner's ability to participate in and benefit from off-campus study. This type of research will aid decision makers in constructing quality off-campus programs that accommodate the needs and preferences of agricultural distant learners.

A number of studies (Brown, 1983; Miller & Honeyman, 1993; Weeks, 1987; Wilson, 1990) involving adult learners indicate generally positive attitudes toward videotaped instruction. What attitudes were held by graduates of the off-campus agricultural degree program, and what characteristics of the delivery media are most important for understanding these attitudes?

Development of the method and process for technology-mediated instruction is needed to advance distance education in agriculture. Miller and Honeyman (1994) identified a number of effective instructional practices for videotape that were espoused in the literature. What videotape teaching practices were important to graduates of an agricultural distance education program, and to what extent were the practices utilized by college teachers of agriculture?

Purpose and Objectives

The purpose of this study was to describe experiences of graduates with an off-campus agriculture degree program. Additionally, the researchers sought to describe selected teaching variables and attitudes related to agricultural courses delivered by videotape. The objectives of the study were as follows:

1. Describe selected variables related to graduates' experiences with an off-campus professional agriculture degree program.
2. Describe the perceptions held by graduates of an off-campus professional agriculture degree program related to obstacles encountered in off-campus study.
3. Describe graduates' perceptions regarding the importance of and the extent to which effective videotape instructional practices were utilized by instructors.
4. Describe attitudes of graduates toward the use of videotape as a tool for delivering agricultural courses.
5. Describe relationships between graduates' attitudes toward videotaped instruction and selected variables.

Procedures

Population

The population for the study consisted of all persons who had earned a bachelor's or master's of professional agriculture degree from Iowa State University. Forty-six master's degrees and seven bachelor's degrees had been awarded through fall semester, 1993. All graduates (N=53) were included in the study.

Instrumentation

The questionnaire included four Likert-type scales in addition to selected demographic questions and questions related to graduates' experiences with the off-campus program. Content and face validity for the questionnaire were established by a panel of faculty and graduate students in agricultural education.

A six point Likert-type scale with response categories ranging from insignificant (1) to significant (6) was used to measure graduates' perceptions related to obstacles faced by off-campus students. An item pool for the perception scale was generated by interviewing administrators, advisors, professors, and students associated with the off-campus professional agriculture degree program. Ten students enrolled in the off-campus program participated in a field test of the instrument. Ultimately, 13 obstacles were selected by the researcher to be included in the scale. Cronbach's alpha was calculated to estimate the internal consistency of the scale and resulted in a coefficient of .71.

Fifteen statements representing effective videotape instructional practices were selected from an instrument developed by Miller and Honeyman (1994). Each of the 15 statements received mean ratings of 4.25 or higher for importance on a five-point Likert-type scale in the Miller and Honeyman (1994) study. Graduates were asked to indicate their level of agreement with the statements regarding the extent to which the practices were important and the extent to which they had occurred. Data from the Miller and Honeyman (1994) study were used to estimate the internal consistency of the scales. Cronbach's alpha coefficients were .91 for the importance scale and .87 for the occurrence scale.

The scale for assessing attitudes toward videotaped instruction consisted of 11 Likert-type items, with five response categories ranging from strongly disagree (1) to strongly agree (5). The attitude scale was previously developed by Miller and Honeyman (1993) and had a Cronbach's alpha coefficient of .86.

Data Collection

Data for the study were collected by mailed questionnaire. The questionnaire, a cover letter, and a stamped return envelope were sent to all graduates of the professional agriculture degree program. Approximately four weeks after the initial package was mailed, a second complete package was sent to all nonrespondents. Two weeks after the second complete package was mailed, telephone calls were made to all nonrespondents to encourage their participation in the study. Forty-two master's graduates and four bachelor's graduates completed and returned the questionnaire for a response rate of 87%.

Analysis of Data

All data were analyzed with the SPSS/PC+ personal computer program. Appropriate statistics for description were used, including frequencies, percents, means, stan lard deviations, point biserial correlation and pearson correlations. All correlation coefficients were interpreted using Davis' (1971) descriptors.

Results

Graduates of the off-campus professional agriculture program ranged in age from 27 to 67 years. The mean age of graduates was 45 years with a standard deviation of 9. Approximately 89% (41) of the graduates were male.

Graduates were asked to rank four motivating factors for enrolling in the off-campus program. The graduates rated pursuing a degree as the most motivating factor followed by acquiring current technical knowledge, enjoyment of learning new information, and career advancement (Table 1).

The amount of time needed to complete the off-campus degree program ranged from a low of 24 months to a high of 126 months. A majority (58.7%) of graduates took more than 60 months to complete the program (Table 2).

Graduates of the off-campus program experienced a variety of delivery mechanisms for their courses. Several courses were taught at different sites in the state through conventional methods. Also, many students took courses by videotape whereas some took courses via satellite broadcast and through two-way audio and video communications technology. Generally, students were required to attend one or more on-campus sessions for each course even if the course was offered through distance education technologies. Table 3 shows that a majority (65.2%) of graduates traveled to campus 20 or fewer times. However, 13% of the graduates reported traveling to campus more than 31 times.

Table 1
Mean Rankings and Standard Deviations for Factors that Motivated Students to Enroll in the Off-Campus Program

Motive	Mean	Std. Dev.
Pursuing a degree	1.59	.90
Acquiring current technical knowledge	2.52	.99
For the enjoyment of learning new information	2.93	1.09
Career advancement	3.12	1.17

Table 2
Time in Months Taken by Students to Complete the Off-Campus Program

Number of Times	f	%	Cum %
13-24	1	2.2	2.2
25-36	3	6.5	8.7
37-48	5	10.9	19.6
49-60	10	21.7	41.3
61-72	9	19.5	60.9
73-84	9	19.5	80.4
85-96	5	10.9	91.3
97-108	2	4.4	95.7
109-120	1	2.2	97.8
121-132	1	2.2	100.0
Total	46	100.0	100.0

Mean 69.72 Std. Dev. 22.77

On a six point Likert-type scale, graduates were asked to rate the significance of 13 obstacles to off-campus study. Table 4 shows that 10.9% (five) of graduates provided a mean score between 1.51 and 2.50 (moderately insignificant), and 43.4% (20) provided a mean score between 2.51 and 3.50 (slightly insignificant). The remaining 45.7% (21) of graduates provided a mean score between 3.51 and 5.50 (slightly significant to moderately significant). The overall mean score for the perceived significance of obstacles to off-campus study was 3.34 (slightly insignificant) with a standard deviation of .67.

Table 3
Number of Times Respondents Traveled to Campus for Reasons Related to the Off-Campus Program

Number of Times	f	%	Cum %
0 to 10	18	39.1	39.1
11 to 20	12	26.1	65.2
21 to 30	10	21.7	87.0
31 to 40	4	8.7	95.7
41 to 50	1	2.2	97.8
51 to 60	1	2.2	100.0
Total	46	100.0	100.0

Table 4
Overall Mean Scores for the Perceived Significance of 13 Obstacles to Off-Campus Study

Mean f	%	Cum %	
1.51-2.50	5	10.9	10.9
2.51-3.50	20	43.4	54.3
3.51-4.50	19	41.4	95.7
4.51-5.50	2	4.3	100.0
Total 46	100.0	100.0	

Mean 3.34 Std. Dev. .67
Note:Based on Scale: 1 = insignificant; 2 = moderately insignificant; 3 = slightly insignificant; 4 = slightly significant; 5 = moderately significant; 6 = significant.

The percentages of respondents who rated each obstacle as slightly significant to significant are presented in Table 5. Four obstacles were perceived to be slightly significant to significant by a majority of graduates. The four obstacles were related to limited course offerings, difficulty in balancing responsibilities, access to library facilities, and program costs. Obstacles related to course prerequisites, financial aid, faculty understanding of student needs, and dealing with a number of departments were least significant.

Table 5
Percentage of Respondents Who Selected Slightly Significant, Moderately Significant, or Significant for Each Obstacle

Obstacle		%
1.	Limited number of courses offered.	82.6
2.	Difficulty in balancing school, personal, and work responsibilities.	71.7
3.	Lack of access to library facilities.	65.2
4.	Cost of the program.	60.9
5.	Attending sessions held on campus.	47.8
6.	Course offerings did not fit needs.	47.8
7.	Lack of scholarships	47.8
8.	Lack of access to instructors.	47.8
9.	Lack of access to other students.	43.5
10.	Dealing with a number of different departments.	39.1
11.	Faculty did not understand student needs.	37.0
12.	Accessing financial aid at the University.	34.8
13.	Prerequisites required for classes.	19.6

Sixty-three percent (29) of the 42 respondents had taken at least one videotaped course through the off-campus professional agriculture degree program. This group of 29 graduates provided data for the objectives related to videotape course delivery. Graduates, on average, had taken 4 videotaped courses with a range of 1 to 15 and a standard deviation of 3.86.

Table 6 presents means and standard deviations for individual items on the importance and occurrence scale. Arguably, each of the 15 practices applies not only to the distant setting but also to conventional settings. Farr and Shaeffer (1993) suggested that the principles of distance education and conventional education are analogous. However, the 15 practices listed in Table 6 are particularly important for distant learners (Cyrs & Smith, 1990; Gibson, 1985; Miller & Honeyman, 1994; Thompson, Simonson & Hargrave, 1991; Wilson, 1991). Graduates agreed that each practice was important for their learning and that each had occurred in their videotaped course(s), but graduates provided higher mean scores for importance than for occurrence on each of the 15 practices.

Graduates' attitudes toward videotaped instruction were measured with a five-point Likert-type scale. Table 7 shows that 75.9% (22) of the graduates provided mean attitude scores greater than 3.5 (agree to strongly agree). Only 3.4% (1) of the graduates provided a mean score less than 2.50 (disagree), and the remaining 20.7% (6) of the graduates provided mean attitude scores between 2.51 and 3.50 (undecided).

The researchers analyzed responses to individual items on the attitude scale and discovered that graduates provided more positive responses for items related to convenience, opportunity for learning, control of pace, and whether or not they would be willing to take additional videotaped courses. Items that yielded lower mean scores indicated that graduates felt isolated and would prefer traditional methods of instructional delivery over videotape.

Table 6
Means and Standard Deviations for Videotape Instructional Practices on the Importance and Occurrence Scale

Item		Importance		Occurrence	
		Mean	S.D.	Mean	S.D.
1.	The instructor(s) demonstrated command of the material that they were teaching.	4.52	.51	4.28	.59
2.	Supporting materials (text, study guide, etc.) contributed to my understanding of the courses(s).	4.46	.50	3.72	.88
3.	The instructor(s) were enthusiastic.	4.38	.56	3.90	1.01
4.	The instructor(s) spoke clearly.	4.38	.56	4.14	.58
5.	Lessons were interesting.	4.35	.61	3.62	1.05
6.	The instructor(s) made clear the relative importance of the information presented.	4.31	.76	3.66	.90
7.	The instruction required me to think.	4.31	.47	3.90	.86
8.	The instructor(s) provided a structured outline of content to be taught.	4.28	.53	3.93	.37
9.	Tests required application of the course content.	4.28	.59	4.07	.75
10.	The instructor(s) spoke at an appropriate pace.	4.24	.58	4.03	.57
11.	The organization of content within a given lesson was logical.	4.24	.58	3.90	.49
12.	The instructor(s) effectively communicated the material to be learned.	4.24	.69	3.75	.79
13.	The instructor(s) demonstrated the interrelatedness of the course concepts.	4.17	.76	3.62	.68
14.	The instructors explained what I should know or be able to do as a result of viewing the videotapes.	4.14	.64	3.48	.91
15.	"Real world" application of content was stressed by the instructor(s).	4.11	.67	3.63	.97

Table 7
Overall Mean Scores for Attitude Toward Videotaped Instruction

Mean	f	%	Cum %
1.51-2.00	1	3.4	3.4
2.01-2.50	0	0.0	3.4
2.51-3.00	2	6.9	10.3
3.01-3.50	4	13.8	24.1
3.51-4.00	14	48.3	72.4
4.01-4.50	6	20.7	93.1
4.51-5.00	2	6.9	100.0
Total	29	100.0	100.0

Mean 3.72 Std. Dev. .59
Note: Based on Scale: 1 = strongly disagree; 2= disagree; 3= undecided; 4= agree; 5=strongly agree

Pearson correlations and point biserial correlations were used to describe relationships between graduate's attitude toward videotaped instruction and selected variables (Table 8). A low positive relationship was found between attitude and gender. A low negative relationship was found between attitude and age. A moderate positive relationship existed between attitude and number of videotaped courses taken, and a substantial positive relationship was found between attitude and perceived occurrence of the videotape instructional practices. Students with more positive attitudes toward videotaped instruction tended to be female, were younger, had taken more videotaped courses, and perceived to a greater extent the occurrence of the videotaped instructional practices.

Table 8
Summary of Relationships Between Attitude Toward Videotaped Instruction and Selected Variables

Variable	Association
Occurrence of effective practices	.50
No. videotaped courses completed	.37
Age	-.22
Gender [a]	.22

[a] r_{pb}

Conclusions and/or Recommendations

Most graduates of the professional agriculture program took five or more years to complete the requirements for their degree and considered the limited number of course offerings to be the most significant obstacle to off-campus study. More agricultural courses should be offered through fiber optics, satellite broadcasts, and videotape to accommodate the educational needs of distance learners and to facilitate a more timely completion of their degree requirements. Administrators should make efforts to encourage greater participation of college faculty in the delivery of off-campus courses. Administrators must recognize the additional efforts required of instructors who teach at a distance and consider this when evaluating the work of faculty members.

One of the often cited benefits of distance education is a reduction in the need to travel. This reduction of travel allows students to better use their time in balancing school, work, and personal responsibilities. Hezel and Dirr (1990) recognized the importance of time to the distant learner when they wrote, "although the term 'distance education' is becoming the accepted term for describing new educational opportunities that offer students flexibility for pursuing their degrees, time rather than distance seems to be the major constraint facing those students." (p. 6) Most graduates traveled to campus 20 or fewer times for reasons related to the off-campus professional agriculture degree program. Twenty trips to campus may be reasonable considering that most graduates took five or more years to complete their degree requirements, but advanced communications technology must be exploited further to reduce the amount of travel required of students. Also, partnerships between the university and secondary agriculture teachers, community colleges, and outlying research centers should be established. Students should be able to complete laboratory activities and obtain academic assistance from individuals and institutions in their local communities.

Overall, the obstacles to off-campus study were perceived to be slightly insignificant by graduates of the program. However, a majority of graduates perceived that limited course offerings, difficulty in balancing responsibilities, and program costs were slightly significant to significant barriers. Administrators should attempt to eliminate or minimize the effects of each of these barriers. Data from this investigation have been requested by and delivered to persons within the university responsible for policy decisions related to each of the obstacles.

Overall, graduates perceived the 15 videotape instructional practices to be important for their learning and perceived that the practices had occurred in the videotaped course(s) they had taken. However, the extent to which the practices had occurred was lower than the perceived importance for each of the practices. College of agriculture faculty were doing a relatively good job of teaching through videotape, but efforts should be made to help faculty integrate more of the effective practices into their instruction. College of agriculture faculty should be provided an opportunity to participate in a formal program aimed at assisting

them in improving the design, organization, and delivery of agricultural courses offered via one-way instructional television. This assistance should be based on sound scholarship. Therefore, further research is needed to determine which teaching methods and strategies are most appropriate for specific delivery systems and groups of learners. A study by Miller and Lehtola (1994) provides an example of the type of research needed to further develop the method and process of technology mediated instruction.

A majority of graduates held positive to strongly positive attitudes toward videotaped instruction. Graduates were most positive about the opportunity for learning provided by videotape, the ability to control the pace of their learning, and convenience. This conclusion is consistent with the work of Miller and Honeyman (1993) and with the desirability indicators of distance education that were identified by Gulliver and Wright (1989). Videotaped instruction provides a suitable means of offering credit courses to distant learners. This study shows that graduates were more positive about videotaped instruction when they perceived to a greater extent the occurrence of effective practices. Therefore, quality instruction is key to maintaining the acceptability of this medium with distant learners.

The results of this study have direct implications for college teaching -- particularly distance teaching. Data from this study illustrate learning strategies and preferences of a select group of agricultural distance learners. Faculty should routinely consider the learning preferences of their students when planning, organizing, and delivering courses. Faculty should also consider that any instructional media, including videotape, will be more or less obliging to a particular student's learning style (Ullmer, 1994). A challenge to college teachers of agriculture is to discover innovative teaching strategies that exploit the potential of the teaching medium. A body of research exists which demonstrates a significant improvement in student achievement and attitudes when teaching styles are congruent with learner preferences (Griggs, 1991).

The instructional practices listed in Table 6 were considered to be important for learning by the graduates of the professional agriculture degree program, and the extent to which graduates perceived the practices had occurred was positively related to their attitude toward videotaped instruction. Agriculture faculty who teach at a distance might consider doing a self-assessment and ask their students to assess the extent to which they use the practices. A small number of practices could be targeted and consciously integrated into distance teaching. Feedback on the extent to which the practice was effectively used could be sought from colleagues and from students enrolled in their course(s).

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